No.10013.A08
PAT00003.A08

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : Jerry A. PICKERING et al.

Appl. No. : 09/879,466

Filed : June 12, 2001

Examiner Henry S. Hu
Technology Center 1700
Group Art Unit 1713
Confirmation No. 4348

For : SURFACE CONTACTING MEMBER FOR TONER FUSING SYSTEM AND PROCESS, COMPOSITION FOR MEMBER SURFACE LAYER, AND PROCESS FOR PREPARING COMPOSITION

DECLARATION OF JERRY A. PICKERING, STEPHEN V. DAVIS, AND THEODORA MILLER UNDER 37 C.F.R. § 1.131

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Jerry A. Pickering, I, Stephen V. Davis, and I, Theodora Miller, each declares as follows:

1. I, and the other two previously named individuals, are the inventors of the invention that is the subject of the present, above identified Application No. 09/879,466, filed June 12, 2001, entitled "Surface Contacting Member For Toner Fusing System And Process, Composition For Member Surface Layer, And Process For Preparing Composition", Applicants' Docket Nos. 10013 and PAT00003.

2. Copies of all the records referred to below, including laboratory notebook pages, are provided with this Declaration.

3. On December 6, 1999, Jerry Pickering wrote, to Theodora Miller, the typewritten note entitled "To: Theodora From: Jerry", and bearing the date "12/06/99". In this note, he requested, inter alia, that she prepare the composition set forth in the last column of the table in the note; this composition is identified at the top of the column by the appellation "C". As shown in the column, Composition C was to include 100 parts by weight "VitonA", 12 parts by weight "MgO (mag-Y)", and 45.4 parts by weight "Silica (ts-530)". "VitonA" is Viton® A, "MgO (mag-Y)" is magnesium oxide, and "Silica (ts-530)" is Cab-O-Sil® TS-530.

4. During the period of December 8 and 9, 1999, Theodora Miller prepared the requested Composition C - as confirmed in Laboratory Notebook No. HD0014, at page 27, dated "12/8/9/99", second through fourth lines, written by Theodora Miller during the period of December 8 and 9, 1999.

5. As shown at page 27 of Laboratory Notebook No. HD0014, the "Viton A", "MgO", and "Fume Silica" are Viton® A, magnesium

oxide, and Cab-O-Sil® TS-530, respectively. Regarding the amounts of materials used to prepare Composition C, the "100", "12", and "45.4" - appearing at page 27 of Laboratory Notebook No. HD0014 with Viton® A, magnesium oxide, and Cab-O-Sil® TS-530, respectively - represent parts by weight, notwithstanding the "g" appearing after "100".

6. Composition C is identified in the present application as Composition 1, and was prepared in accordance with the procedure set forth at paragraph [0167] of the present application. The Viton® A, magnesium oxide, and Cab-O-Sil® TS-530 of Composition C are the fluoroelastomer, MgO, and hexamethyldisilazane surface-treated fumed silica, respectively, of Composition 1. The 300 grams of fluoroelastomer, 36 grams of MgO, and 136.2 grams of hexamethyldisilazane surface-treated fumed silica of Composition 1 correspond, respectively, to the 100 parts by weight Viton® A, 12 parts by weight magnesium oxide, and 45.4 parts by weight Cab-O-Sil® TS-530 of Composition C - multiplied by a factor of three.

7. On or before November 6, 1999, Jerry Pickering prepared the composition identified in the present application as

Composition 2. This preparation of Composition 2 is confirmed in Laboratory Notebook No. BB88 15, at page 48, dated "11/6/99" and written by Jerry Pickering on November 6, 1999. The indicated confirmation, of the preparation of Composition 2, is the "recompounded Fume Silica compound" at the eleventh line of page 48 in Laboratory Notebook No. BB88 15.

8. The foregoing "recompounded" refers to repetition, by Jerry Pickering, of the composition preparation previously performed by Theodora Miller, also on or before November 6, 1999. This previous preparation, by Theodora Miller, is recorded in Laboratory Notebook No. BB88 15, at page 52, dated "11/8/99", first through eighth lines, written by Jerry Pickering on November 8, 1999.

9. As shown at page 52 of Laboratory Notebook No. BB88 15, the "Viton A", "MgO (MagY)", and "Fume Silica" are Viton® A, magnesium oxide, and Cab-O-Sil® TS-530, respectively. Regarding the amounts of materials used to prepare Composition 2, the "100", "12", and "12" - appearing at page 52 of Laboratory Notebook No. BB88 15 with Viton® A, magnesium oxide, and Cab-O-

Sil® TS-530, respectively - represent parts per 100 parts by weight of Viton® A.

10. Composition 2 of the present application was prepared in accordance with the procedure set forth at paragraph [0168] of the application. The Viton® A, magnesium oxide, and Cab-O-Sil® TS-530 from page 52 of Laboratory Notebook No. BB88 15 are the fluoroelastomer, MgO, and hexamethyldisilazane surface-treated fumed silica, respectively, of Composition 2. The 300 grams of fluoroelastomer (this being the sum of the 7.2 grams and 292.8 grams of fluoroelastomer identified in application paragraph [0168]), the 36 grams of MgO, and the 36 grams of hexamethyldisilazane surface-treated fumed silica of Composition 2 correspond, respectively, to the 100 parts by weight Viton® A, 12 parts by weight magnesium oxide, and 12 parts by weight Cab-O-Sil® TS-530 silica from page 52 of Laboratory Notebook No. BB88 15 - multiplied by a factor of three.

11. On January 17, 2000 - as confirmed in Laboratory Notebook No. HD0014, at page 44, dated "1/17/2000", sixth through seventeenth lines, written by Theodora Miller on January 17, 2000

- Theodora Miller prepared the fuser roller coating composition for Comparative Example 3 of the present application.

12. The fuser roller coating composition for Comparative Example 3 was prepared in accordance with the procedure set forth at paragraph [0184] of the present application. In accordance with paragraphs [0184], [0177], and [0178] of the present application, this fuser roller coating composition included, inter alia, Viton® Curative No. 50, MEK, and an amount of Composition 1.

13. As to the following data in quotation marks, found at page 44, sixth through seventeenth lines, of Laboratory Notebook No. HD0014:

- the "HD0014-27-30%Si" refers to Composition 1 of the present application, as confirmed by paragraphs 3-6 of this Declaration;

- the "227g sol" and "(25.3%) 57.5g Comp" refer to 227 grams of solution including 25.3 percent by weight of Composition 1, calculating out (0.253 x 227) to approximately 57.5 grams of Composition 1;

- the " Cure 50" refers to Viton® Curative No. 50;

- the "0.908 g" of the "Cure 50", in relation to the "57.5g Comp", calculates out to the "1.58pph", and corresponds to the reference to 1.58 parts curative per 100 parts by weight, in paragraph [0184] of the present application; and

- the statement "the solutions were milled 96h (multiple underlining) on a crock" corresponds to the reference to roll milling for 96 hours, in paragraph [0184] of the present application.

14. On January 18, 2000 - as confirmed in Laboratory Notebook No. HD0014, at page 46, dated "1/18/2000", nineteenth through twenty first lines, written by Theodora Miller on January 18, 2000 - Theodora Miller prepared the fuser roller coating composition for Example 3 of the present application.

15. The fuser roller coating composition for Example 3 was prepared in accordance with the procedure set forth at paragraph [0188] of the present application. In accordance with paragraphs [0188], [0184], [0177], and [0178] of the present application, this fuser roller coating composition included, inter alia, Viton® Curative No. 50, MEK, and an amount of Composition 1.

16. On or before November 6, 1999, Jerry Pickering prepared the fuser roller coating composition for Example 5 of the present application. This preparation, of the fuser roller coating composition for Example 5, is confirmed in Laboratory Notebook No. BB88 15, at page 48, dated "11/6/99", written by Jerry Pickering on November 6, 1999. The indicated confirmation, of the preparation of the fuser roller coating composition for Example 5, is the "reprepared coatings" at the eleventh and twelfth lines of page 48 in Laboratory Notebook No. BB88 15.

17. The foregoing "reprepared" refers to repetition, by Jerry Pickering, of the preparation of fuser roller coating composition previously performed by Theodora Miller, also on or before November 6, 1999. This previous preparation, by Theodora Miller, is recorded in Laboratory Notebook No. BB88 15, at page 48, dated "11/6/99", first through ninth lines, written by Jerry Pickering on November 8, 1999.

18. The fuser roller coating composition for Example 5 was prepared in accordance with the procedure set forth at paragraphs [0192] and [0193] of the present application. In accordance with these indicated paragraphs [0192] and [0193], this fuser roller

coating composition included, inter alia, Viton® Curative No. 50, MEK, and an amount of Composition 2.

19. As to the following data in quotation marks, found at page 48 of Laboratory Notebook No. BB88 15:

- the "Fume Silica compound", at the eleventh line, refers to Composition 2, in paragraph [0192] of the present application;

- the "135g mek", at the twelfth line, corresponds to the reference to 135 grams of MEK, in paragraph [0192] of the present application;

- the "40g compound", at the twelfth line, corresponds to the reference to 40 grams of the Composition 2 composite sheet, in paragraph [0192] of the present application;

- the "cure 50", at the ninth line, refers to Viton® Curative No. 50, in paragraph [0193] of the present application; and

- the "2.5g/100g compound", at the ninth line, of the indicated "cure 50", in relation to the indicated "40g compound", calculates out (2.5/100 x 40) to the 1 gram of Viton® Curative No. 50, in paragraph [0193] of the present application.

I declare further that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further, that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001, Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

11/12/03
Date

Jerry A. Pickering

11/13/03
Date

Stephen V. Davis

11/12/03
Date

Theodora Miller

To: Theodora
From: Jerry

12/06/1999

Compounds:
Please weigh out the following and begin compounding:
(note: use dust mask for both compounds)

	A (3x)	B (4x)	(C-see #3)
VitonA	100	100	100
MgO (mag-Y)	12	15	12
Silica (ts-530)	0	0	45.4
Fe2O3(7098)	166	0	0
Al2O3(T-64)	0	155	0
Cure20	0	2	0
Cure30	0	4	0

Rollers: (compound + MEK, dissolve, then PS513 with cure before coating)
(the following are nine rollers with RR tie coats, have at least one extra RR coated roll ready)

1) Coat two silastic-j DHV rollers (green) with RR tie layer, plasma jet- treatment, and 1mil of 10% iron oxide compound (BB8815-42-1); 60g MEK and 20g compound made a solution of 252cp.

2) Coat four silastic-j DHV rollers (green) with RR tie layer, plasma jet- treatment, and 1mil of 35% iron oxide compound (A, above); 120g MEK and 85g compound made a solution of 150cp.

3) Thick Silica roller: silastic-j DHVroller with RR tie layer, plasma-jet surface treatment.

a) check if silica compound will dissolve, and determine amount needed to obtain viscosity, prepare 3 solutions – each with a different compound to MEK ratio, only about 50g total for each.

b) if compound does not dissolve uniformly, then run on two roll mill until warm and fold 10 times.

c) re-try solutions and coat best solution to a coating of 4 mils. (coat ½ an excel roller to monitor thickness). If coating continues to fail, prepare compound C above.

4) Coat 2 silastic-j DHV rollers (green) with RR tie layer, plasma jet- treatment, and 1 mil of silica formulation as in (3)

RESEARCH / DEVELOPMENT Notebook No. HD0014 27

HEIDELBERG Digital LLC Date 10/19-99

Problem: IPN Rollers

⇒ HD0014-27 - Compound: Vitel A (4x): 100 g
Silica MgO 12
Fume Silica 45.4
146.4 31%

⇒ Prepared 3 solution of HD0014-27 comp:

1) 75% mek (40g comp + 120g mek)
2) 80% mek (20g comp + 80g)
3) 60% mek (20g comp + 30g mek)

⇒ Prepared a R.R solution for 2 Rollers:
137g sol (100g EC4952 - new lot + 37g mek
+ 0.25 g Cat 50

⇒ Coated 2 Rollers DHV and put them to cure at 60°C for 2 hrs.

Signature Theresa Miller

The foregoing disclosed to me on _____ 19____ Witness _____

Notebook No. BB88 15

RESEARCH / DEVELOPMENT

EASTMAN KODAK COMPANY

Date 11/6/99

Problem: Rollers for Ruboff testing

JAP 34 - 10% Fume Silica - coated by Theodore Miller
4 coats with compound C prepared by Theodore Miller
compound is 10 wt% Fume Silica. Silica is
Hexamethylene Diamine treated, with Viton A dispersed
in MEK added to reduce drying.
- no red "specks" - refiltered w/ double filter
- better coating. 40g compound in 120+20g MEK
.5g/100 solution PS513
2.5g/100g compound cure 60

120 mK + 40g compound = cp
120 mK + 40g = cp
= cp

- recompounded Fume Silica compound, reprepared
coatings @ 135g mek + 40g compound.

desired: 4 mils

Put down 4 coats and 1 coat on ½ excell
(A) Roller, used piece of roll (cut) inboard - Wet = 9
mils - this used the 137 cp solution, 3 of 4 wet 112 cp

- Used 137 cp solution (sat on roll overnight) to coat 5th
coating on JAP 34
Visc = 205 cp

KP 15226-5/86 I. P. S.

Signature _____

The foregoing disclosed to me on _____ 19___ _____
Witness

PAGE 52

BB88 15

Notebook No.

RESEARCH / DEVELOPMENT

EASTMAN KODAK COMPANY

Date 11/8/99

Problem: Fume Silica 10%

Compounded by Theodora Miller
(used up on page 48)

	grams	phr
Viton A	500 g	100
MgO (magi)	60 g	12
Fume Silica	60 g	12

C heel ~~100~~ g Viton A dissolved in MEK added to reduce viscosity
(12 parts water per 100 parts Fume Silica)

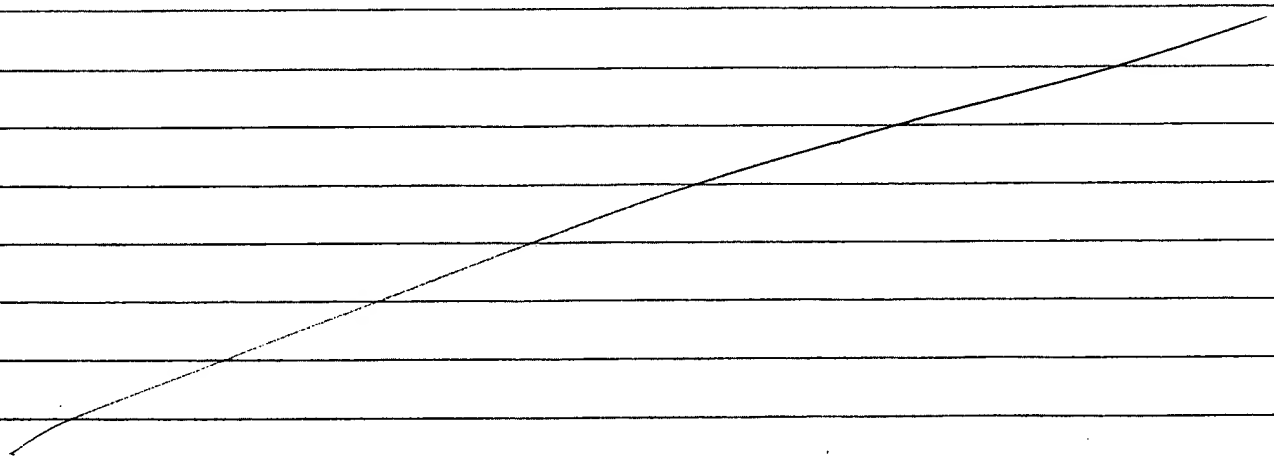
compounded ok

↳ P46 solution had defects

↳ re compounded on mill

↳ solution still has defects

→ the addition of silica with MEK/Viton A to added from solution + dried appears to encourage defects.



KP 15226-5/86 I. P. S.

Signature

The foregoing disclosed to me on 19

Witness

HD0014 **RESEARCH / DEVELOPMENT**

Notebook No. _____

HEIDELBERG Digital LLC

Date 1/17/2000

Problem: Ring coatings

⇒ HD0014-24~~3~~ 35% Fe = HD0014-44 - 35%.

272 g rol + 1.224 g PSS13

1.088 g Cur 50 in 13 g Mek

THH915

η = 120 cp

⇒ HD0014-27- 30% Fe = HD0014-46 - 30% Fe ⇒

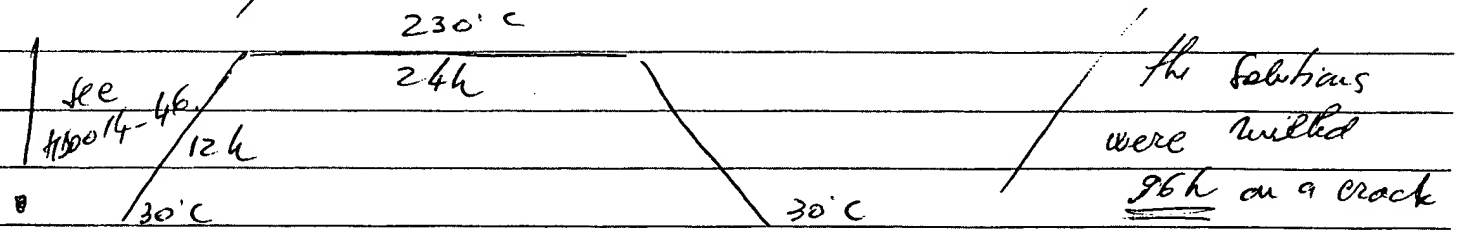
⇒ 227 g rol + 1.0215 g PSS13

(25%) 375 g Comp ⇒ 0.908 g Cur 50 in 15 g Mek

THH916 + added 35 g Mek 1.58 pH

⇒ η = 240 cp

The larger rolls 35% Fe were coated 4 times and put to the oven to cure.



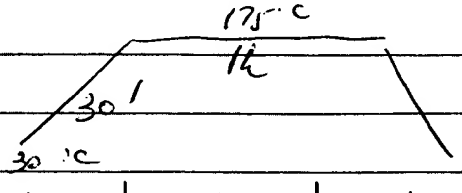
the solutions were milled 96h on a crock

— the layers of roll were Thixon primer

1 pat Thixon 300

1 pat Thixon 311

2 pats Triphenylamine (0.5 g in 40 g Mek) in Mek and cured at 175° C.



Signature Theodora Miller

The foregoing disclosed to me on _____ 19____ Witness _____

Notebook No. HD0014 **RESEARCH / DEVELOPMENT**

HEIDELBERG Digital LLC

Date 1/18/2000

Problem: Ring coats. / Rayleigh test

⇐ THM15

⇒ HD0014-44- 35 % Fe (HD0014-24) →

⇐ THM16

⇒ HD0014-44-30 % Si (HD0014-27)

were 5 times coated and put to cure (see HD0014-44) !

for the 5th coat $\eta_{Fe\ 35\%}$ = 115 cp

$\eta_{30\%\ Si}$ = 115 cp. - the old solution (see HD0014-44).

⇒ the new solution (the compound warmed up) HD0014-27-30 %.

was used to coat 1/2 excel roller

η = 202.5 cp. (after 30' w cure)

⇒ once then 1/2 excell roller was coated with old sol. HD0014-27-30 % Si - η = 115 cp. (cold compound)

Another portion of "new" sol was welled overnight @ cure and it was coated on a 1/2 Excell Roller

⇒ finished the Rayleigh test for special roll and HD0014-40 (A/B/C/24) excell rollers

Signature Theodora Miller

The foregoing disclosed to me on _____ 19____ Witness _____